

d. Remarks

OBVIOUSNESS REJECTIONS

1. At page 2, the Office Action rejects claims 8 - 18 as obvious over the Nature article of Nagamatsu et al (published March 1, 2001) and U.S. Patent 5,206,216 of Yoshida.

Applicants are entitled to a date of invention that predates the March 1, 2001 date of the article of Nagamatsu et al. Applicants have provided evidence supporting this earlier date of invention. The evidence includes:

- a) 37 CFR 1.131 Declaration of Cheong and Hur, which is dated Aug. 28, 2003 (Declaration I);
- b) Exhibits 1- 4, which were submitted on Sept. 8, 2003 with Declaration I;
- c) Supplemental 37 CFR 1.131 Declaration of Cheong and Hur, which is dated Feb. 13, 2004 (Declaration II);
- d) Exhibit A, which was submitted on Feb. 23, 2003 with Declaration II;
- e) 37 CFR 1.132 Declaration of John McCabe, which is dated and was submitted on Feb. 23, 2004;
- f) Supplemental 37 C FR 1.131 Declaration of Cheong and Hur, which is submitted with this response (Declaration IV);
- g) Exhibits B – E, which are submitted with this response;

This evidence has a character and weight sufficient to show both conception prior to the date of the Nagamatsu article and diligence that started prior to the date of the Nagamatsu article and continued to the March 12, 2001 filing of U.S. provisional patent application 60/275,067 ('067 application). The '067 application supports the pending claims.

With respect to conception, Applicants incorporate herein arguments on the date of conception as already submitted in Applicants' Response of Sept. 8, 2003, page 7, and Applicants' Response of Feb. 23, 2004, page 6. Those arguments and evidence from Declaration I, Declaration II, and Exhibit 1 show that the current inventors conceived of the invention prior to March 1, 2001. For example, Declaration I, pars. 4 – 6; Declaration II, par. 5; and Exhibit 1 show that the inventors conceived each element of claim 8 prior to March 2001. Thus, the inventors conceived the claimed inventions before the March 1, 2001 publication of the Nagamatsu article.

With respect to diligence, Applicants incorporate herein arguments on diligence towards reduction to practice as already submitted in Applicants' Response of Sept. 8, 2003, page 7-9, and Applicants' Response of Feb. 23, 2004, pages 6 - 7. As described in

those Responses, Declaration I, pars. 11-15; Declaration II, pars. 2 - 4 and 6; Declaration III, pars. 2 - 3; and Exhibits 2 - 4 and A show that diligence activities attributable to the inventors started prior to March of 2001 and continued up to March 12, 2001, i.e., the filing date of the '067 application.

Also, Exhibits A-E further corroborate that diligence towards reduction to practice was substantially continuous from February 27, 2001 to March 12, 2001. In particular, Exhibits B, C, D, E, and 4 show notebook pages of Mr. Hur, which are dated Feb. 27, 2001; Feb. 28, 2001; March 1, 2001; March 2, 2001; and March 7, 2001; respectively. Also, Declaration IV, pars. 2-3, describes Exhibits B - E as notebook pages corroborating experiments and preparations for experiments in which Mr. Hur attempted to obtain MgBr_2 pellets. Mr. Hur attempted to obtain the pellets for use in practicing the method of pending claim 8. See also, Declaration I, pars. 13 - 15; and Declaration II, par. 6. As described in Declaration II, pars. 2 - 4, Exhibit A shows a portion of Dr. Cheong's calendar that corroborates activities by Dr. Cheong on March 9, 2001 towards both constructive and actual reduce to practice. In addition, Applicants mention that March 3 - 4 and 10 - 11, 2001 were weekend days. Together, this evidence shows the substantially continuity of activities attributable to inventor diligence during the critical period.

Since conception was prior to the date of the Nagamatsu article and diligence activities started prior to said date and were substantially continuous up to constructive reduction to practice on March 12, 2001, the inventors are entitled to a date of invention prior to the date of the Nagamatsu article. For that reason, the article of Nagamatsu is not proper prior art and, the obviousness rejections of claims 8 - 18 should be withdrawn.

2. At page 3, the Office Action rejects claims 8, 9, and 11-18 as obvious over Yoshida in combination with U.S. Patent Publication 2002/0111275 and provisional application 60/269,095 of Finnemore et al (Finnemore '095).

While Yoshida describes the fabrication of superconducting films/wires via laser ablation, Yoshida fabricates oxide films and wires rather than films of compositions recited in the pending claims. Also, Yoshida provides no suggestion that would have motivated modifying his processes to replace oxides with non-oxides as in the pending claims. For example, Yoshida does not recite a disadvantage of oxide superconducting films or fabrication processes for films of such compositions. Thus, Yoshida does not

motivate modifications of his method that entail using non-oxides as in the pending claims. Instead of a motivation from Yoshida, the Office Action mentions:

... Finnemore teaches that it had been recently discovered (January 2001) that MgB_2 acts as a superconductor at 39 K (paragraph 0005). The benefit of using MgB_2 over oxide superconductors is that MgB_2 is a simple binary intermetallic superconductor having three atoms per formula unit. ...

Office Action, paragraph bridging pages 3 and 4.

Even if MgB_2 is a binary intermetallic superconductor with three atoms per formula unit, that fact does not of itself motivate replacing the oxides of Yoshida's methods with the very different compound MgB_2 . Indeed, the above-recited statement from the Office Action does not state an advantage or disadvantage that would have motivated modifying the methods of Yoshida to arrive at the claimed methods. Rather than a suitable prior art motivation to modify, the Office Action is using impermissible hindsight to motivate combining Yoshida and Finnemore.

Also, even if Finnemore '095 had motivated modifying the method of Yoshida, it would have motivated a modification that is not covered by the pending claims. In particular, Finnemore '095 describes "exposing boron filaments to Mg vapor for a predetermined time and temperature to form MgB_2 wire" Finnemore '095, page 2, par. 0008. That is, Finnemore '095 teaches processes that are based on the diffusion of Mg into boron. See also, Finnemore '095, page 1, par. 4. Thus, even if one combined Finnemore '095 and Yoshida, the combination would not have suggested using a laser to eject MgB_2 from a body as in pending claim 8. Instead, the combination would have suggested a method based on vaporizing Mg itself.

For the above reasons, the rejections based on a combination of Yoshida and Finnemore should be withdrawn, claims 8, 9, and 11-18 are non-obvious over this combination.

3. At page 4, the Office Action rejects claims 10 as obvious over Yoshida, Finnemore, and Nagamatsu.

With respect to claim 10, Applicants are entitled to a date of invention earlier than the March 1, 2001 date of publication of the Nagamatsu article as discussed above in Section 1. For that reason, the Nagamatsu article is not proper prior art for rejecting claim 10 and, this rejection of claims 10 should be withdrawn.

CONCLUSION

Applicants respectfully request allowance of pending claims 8 - 18.

In the event of any non-payment or improper payment of a required fee, the Commissioner is authorized to charge or to credit **Lucent Technologies Deposit Account No. 12-2325** to correct the error.

Respectfully,

By John McCabe

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